IN THE CLAIMS:

Please amend claims as follows:

1. (Currently Amended) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a first control unit for computing a first clutch torque of the clutch unit based on a deviation between the target differential speed and the actual differential speed,

a throttle opening amount detecting unit for detecting a throttle opening amount,

a second control unit for computing a second clutch torque of the clutch unit based on the throttle opening amount,

a tire diameter difference computing unit for computing a diameter difference of a tire, and

a final clutch torque computing unit for computing a final clutch torque wherein the final clutch torque computing unit computes the final clutch torque by a computation involving the first clutch torque, [[and]] the second clutch torque, and at least one ~~in association with a~~ tire diameter difference ratio coefficient value which tire diameter difference ratio coefficient value changes according to the diameter difference of the tire so as to suppress a wheel slippage.

2. (Previously Presented) The differential limiting control apparatus as set forth in claim 1, wherein the first control unit comprises:

a first clutch torque computing unit for computing the deviation between the target differential speed and the actual differential speed, and computing the first clutch torque by

applying a sliding mode control with a switching function using at least a polarity related to an integral term of the deviation.

3. (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein said at least one tire diameter difference ratio coefficient value comprises a first tire diameter difference ratio coefficient value and a second tire diameter difference ratio coefficient value, and wherein said final clutch torque computing unit computes the final clutch torque by a computation comprising said ~~ratio coefficient value, as a~~ first tire diameter difference ratio coefficient value and said second tire diameter difference ratio coefficient value, ~~while~~ wherein said first tire diameter difference ratio coefficient value is in association with one of said first and second clutch torques, and ~~together with a~~ wherein said second tire diameter difference ratio coefficient value ~~while~~ is in association with an opposite one of said first and second clutch torques, and wherein the final clutch torque computing unit reduces the one of said first and second tire diameter difference ratio coefficient values that is associated with said second clutch torque and increases [[an]] the opposite one of said first and second ratio coefficient values that is associated with said first clutch torque as the diameter difference of the tire increases.

4. (Canceled).

5. (Original) The differential limiting control apparatus as set forth in claim 1, wherein:

the clutch unit is interposed between a front axle and a rear axle.

6. (Original) The differential limiting control apparatus as set forth in claim 2, wherein:

the clutch unit is interposed between a front axle and a rear axle.

7. (Original) The differential limiting control apparatus as set forth in claim 3, wherein:

the clutch unit is interposed between a front axle and a rear axle.

8. (Canceled).

9. (Previously Presented) The differential limiting control apparatus as set forth in claim 1, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

10. (Previously Presented) The differential limiting control apparatus as set forth in claim 2, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

11. (Previously Presented) The differential limiting control apparatus as set forth in claim 3, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

12-25. (Canceled).

26. (Previously Presented) The differential limiting control apparatus as set forth in Claim 1, further comprising a brake switch, and

when an ON signal is inputted from the brake switch, the second clutch torque is made to be zero.

27-28. (Canceled).

29. (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein the final clutch torque (T lsd) involves the following equation:

Tlsd=Rtr Tlsdff + (1-Rtr) Tlsdfb

with Rtr representing the tire diameter difference ratio coefficient value [[in]] based on the tire diameter difference ~~constant~~;

Tlsdff representing the second clutch torque; and

Tlsdfb representing the first clutch torque.

30. (Canceled)

31. (Previously Presented) The differential limiting control apparatus as set forth in claim 29, wherein

the Rtr decreases as the diameter difference of the tire increases.

32. (Previously Presented) The differential limiting control apparatus as set forth in claim 29, wherein

the Rtr is 0.5 in the case where the diameter difference of the tire is substantially zero.

33. (Canceled).

34. (Currently Amended) The differential limiting control apparatus as set forth in claim 3, wherein said final clutch torque computing unit computes the final clutch torque with a summation involving a first multiplication comprising said first clutch torque and said second tire diameter difference ratio coefficient value and a second multiplication comprising said second clutch torque and said first tire diameter difference ratio coefficient value.

35. (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein said computing unit utilizes a first contribution value and a second contributing value and wherein each of said first and second contributing values involves said at least one tire diameter difference ratio coefficient value, and wherein [[a]] said first contributing value associated with the first clutch torque in the computation of the final clutch torque increases as the diameter difference of the tire increases and [[a]] said second contributing value associated

with the second clutch toque in the computation of the final clutch torque decreases as the diameter difference of the tire increases, and the first contributing value associated with the first clutch torque decreases and the second contributing value associated with the second clutch torque increases as the diameter difference of the tire decreases.

36. (Previously Presented) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a first control unit for computing a first clutch torque of the clutch unit based on a deviation between the target differential speed and the actual differential speed,

a throttle opening amount detecting unit for detecting a throttle opening amount,

a second control unit for computing a second clutch torque of the clutch unit based on the throttle opening amount,

a tire diameter difference computing unit for computing a diameter difference of a tire and outputting a tire diameter difference value, and

a final clutch torque computing unit for computing a final clutch torque wherein the final clutch torque computing unit receives, as an input, said tire diameter difference value and computes the final clutch torque by a computation involving the first clutch torque and the second clutch torque, and which computation includes a ratio coefficient value which ratio coefficient value changes according to the diameter difference of the tire so as to vary the final clutch torque to promote wheel slippage suppression.

37. (Withdrawn) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a

driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a first control unit for computing a first clutch torque of the clutch unit based on vehicle behavior through a feedback control,

a second control unit for computing a second clutch torque of the clutch unit based on behavior of the vehicle through a feed forward control,

a tire diameter difference computing unit for computing a diameter difference of a tire and outputting a tire diameter difference value, and

a final clutch torque computing unit for computing a final clutch torque wherein the final clutch torque computing unit receives, as an input, said tire diameter difference value and computes the final clutch torque by a computation involving (i) the first clutch torque and a first weighting value associated with said tire diameter difference value and (ii) and the second clutch torque and a second weighting value associated with said tire diameter difference value, and wherein said first and second weighting values vary in opposite fashion upon a change in the tire diameter value.